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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/544,182   | 10/04/2006  | Klaus Habik          | HAB13001/JC/PMB     | 8333             |
| 23364 7590 04/19/2010<br>BACON & THOMAS, PLLC<br>625 SLATERS LANE<br>FOURTH FLOOR<br>ALEXANDRIA, VA 22314-1176 |             |                      |                     |                  |
| EXAMINER   |             |                      |                     |                  |
| CORDRAY, DENNIS R  |             |                      |                     |                  |
| ART UNIT   |             | PAPER NUMBER         |                     |                  |
| 1791   |             |                      |                     |                  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/544,182

**Applicant(s)**

HABIK ET AL.

**Examiner**

DENNIS CORDRAY

**Art Unit**

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 March 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 10-15 and 17-47 is/are pending in the application.
- 4a) Of the above claim(s) 27-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 11-15 and 17-26 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB06)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's amendments and arguments, filed 3/2/2010, have overcome the following rejections:

Claims 1-15 and 17-26 under 35 U.S.C. 112, first paragraph. The limitation prompting the rejection has been deleted.

Claims 1-15 and 17-26 under 35 U.S.C. 112, second paragraph.

Claim 1 under 35 U.S.C. 102(b) or under 35 U.S.C. 103(a) over Kaule et al.

Claims 1, 3-11, 13-15, 17, 18, 21, 24 and 26 under 35 U.S.C. 103(a) over Kaule et al in view of Hasegawa et al and Claims 2, 12, 19, 20, 22, 23 and 25 over Kaule et al in view of Hasegawa et al and further in view of others. The currently claimed upper layer is outside of the disclosure of Hasegawa et al.

Therefore, the rejections have been withdrawn. However, upon further consideration, new grounds of rejection are made as detailed herein.

2. Regarding Applicant's arguments against Kaule et al, the currently claimed invention does not preclude polymerization or crosslinking of the physically drying lacquer layer. The instant Specification does not recite that chemical bond formation, polymerization or crosslinking does not occur in the "physically drying" liquid lacquer layer. As detailed in the new rejections herein, UV-curable coatings for paper are often subject to physical drying prior to curing.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 3, 4, 11, 13-17, 21, 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaule et al (US 5920971) in view of Gertzmann et al (US 6710120).

Claims 1, 3, 4, 11 and 26: Kaule et al discloses a security paper such as a bank note, identity card, etc., comprising a flat substrate (reference #1, Fig. 1) provided at least partly with a reaction adhesive layer or lower layer (4) contacting the substrate, a thin reflective metallized layer (3) and a UV-or chemically curable layer or upper layer of reaction lacquer (2). Adhesive layer (4) is largely chemically homogeneous with layer (2) (Abs; col 4, lines 17-38, Fig. 1). The adhesive can be a lacquer that cures under a specific physical action (e.g. under UV radiation) (col 3, lines 1-9 and 51-60). The lower lacquer layer contacting the substrate is shown as a smooth, contiguous layer (Fig. 1) and, where present, will close the pores of the paper and prevent dirt from accumulating thereon or, at least, one of ordinary skill in the art would have found the closed pores and dirt repelling obvious. The upper lacquer layer is an irreversibly curable protective layer that resists physical and environmental (chemical) influences (col 4, lines 33-39; col 6, lines 1-3; col 6, line 58 to col 7, line 7, Fig. 8).

Kaule et al does not disclose the chemical composition or elastic properties of the lacquer layers.

Gertzmann et al discloses UV-curable coating compositions for paper comprising, in some embodiments, hybrid aqueous dispersions of polyurethane, polymers comprising olefinically unsaturated monomers such as esters and/or amides of (meth)acrylic acid and alcohols having from 1-18 carbons, styrene, etc. and crosslinkers. Photoinitiators can also be added to the coating (Abs; col 1, lines 6-9; col 2, lines 40-42; col 10, lines 46-67; col 11, lines 1-5 and 14-17). The applied coating compositions form films that are dried (reads on physically drying) and further irradiated with UV light (col 11, lines 31-42).

The coatings or layers thus comprise one or more of aliphatic polyester polyurethanes, styrene-acrylic polyurethanes, radiation curing UV-crosslinked layer, aliphatic urethane acrylates and acrylates with photoinitiators.

The art of Kaule et al, Gertzmann et al and the instant invention is analogous as pertaining to UV-curable coatings for paper. One of ordinary skill in the art, lacking guidance from Kaule et al as to the chemical composition of the UV-curable layers, would have turned to disclosures of known UV-curable coatings for paper for further guidance. It would have been obvious to one of ordinary skill in the art to use the claimed lacquers that can be physically dried and cured by UV radiation as the lower and upper lacquer coatings in the paper of Kaule et al in view of Gertzmann et al as functionally equivalent options and to have a reasonable expectation of success. Using chemically similar coatings for the lower and upper layers would assure chemical homogeneity between the layers. The coatings are substantially the same as the claimed coatings, and obtaining the claimed dirt-repellency, elasticity, chemical and

physical protection would also have been obvious because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent or at least obvious.

Claims 13 and 15: Kaule et al discloses that, in some locations, the upper lacquer layer is in direct contact with the lower lacquer layer to form a largely inseparable compound (forms a highly resistant bond) (col 3, lines 9-18).

Regarding Claim 14, Kaule et al discloses that the metallized layer can additionally be provided with a protective layer that is chemically homogeneous with layer 2 (col 5, lines 5-8). The additional protective layer lies between the lower and upper layers.

Claim 17: The two lacquer layers and thin reflective layer contain an embossed hologram (col 2, lines 32-37; col 4, lines 22-26). Holograms have optical properties that vary with the viewing angle. At least the top lacquer layer is transparent and colorless in order for the hologram to be viewed or, at least, making the top layer transparent and colorless would have been obvious to one of ordinary skill in the art.

Claim 21: The substrate can be bank note paper that has been printed on and the lower lacquer layer is applied directly to the substrate (col 5, lines 13-16).

Claim 24: In some embodiments, the lacquer layers are applied all over the substrate (col 7, lines 13-16).

4. Claims 1, 3, 4, 11, 13-17, 21, 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaule et al in view of Leuninger et al (WO 03/099949, US 2006/0058445 of the same patent family used herein for English translation).

Claims 1, 3, 4, 11 and 26: The disclosure and deficiencies of Kaule et al are used as above.

Leuninger et al discloses UV-curable coating compositions for paper comprising aqueous dispersions of a) at least two different copolymers having glass transitions above 50 °C and b) at least one polyfunctional (meth)acrylate (Abs; p 1, pars 1 and 10-17; p 7, pars 123 and 124). Copolymers a) are formed from monomers comprising acrylates, styrene, crosslinker molecules and others (pp 1-2, pars 22-26). Suitable polyfunctional (meth)acrylates include urethane (meth)acrylates (p 6, pars 99 and 100). The dispersions can also comprise photoinitiators and other additives known to the skilled worker (p 6, par 105).

The dispersions are admixed where appropriate with further typical coating additives, applied to a substrate such as paper, dried (reads on physically drying) where appropriate and cured with UV exposure (p 7, par 126). Two or more layers of the coating composition can be applied on top of one another (p 8, par 129).

The cured coatings or layers thus comprise one or more of styrene-acrylic polyurethanes, radiation curing UV-crosslinked layer and acrylates with photoinitiators.

The art of Kaule et al, Leuninger et al and the instant invention is analogous as pertaining to UV-curable coatings for paper. One of ordinary skill in the art, lacking guidance from Kaule et al as to the chemical composition of the UV-curable layers, would have turned to disclosures of known UV-curable coatings for paper for further guidance. It would have been obvious to one of ordinary skill in the art to use the claimed lacquers that can be physically dried and cured by UV radiation as the lower and upper lacquer coatings in the paper of Kaule et al in view of Leuninger et al as functionally equivalent options and to have a reasonable expectation of success. Using chemically similar coatings for the lower and upper layers would assure chemical homogeneity between the layers. The coatings are substantially the same as the claimed coatings, and obtaining the claimed dirt-repellency, elasticity, chemical and physical protection would also have been obvious because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent or at least obvious.

Claims 13 and 15: Kaule et al discloses that, in some locations, the upper lacquer layer is in direct contact with the lower lacquer layer to form a largely inseparable compound (forms a highly resistant bond) (col 3, lines 9-18).



Regarding Claim 14, Kaule et al discloses that the metallized layer can additionally be provided with a protective layer that is chemically homogeneous with layer 2 (col 5, lines 5-8). The additional protective layer lies between the lower and upper layers.

Claim 17: The two lacquer layers and thin reflective layer contain an embossed hologram (col 2, lines 32-37; col 4, lines 22-26). Holograms have optical properties that vary with the viewing angle. At least the top lacquer layer is transparent and colorless in order for the hologram to be viewed or, at least, making the top layer transparent and colorless would have been obvious to one of ordinary skill in the art.

Claim 21: The substrate can be bank note paper that has been printed on and the lower lacquer layer is applied directly to the substrate (col 5, lines 13-16).

Claim 24: In some embodiments, the lacquer layers are applied all over the substrate (col 7, lines 13-16).

5. Claim 2 is rejected under 35 U.S.C. 103(a) as unpatentable over Kaule et al in view of Gertzmann et al or Leuninger et al and further in view of Howland et al (US 5928471).

The disclosures of Kaule et al and Gertzmann et al or Leuninger et al are used as above. Kaule et al and Gertzmann et al or Leuninger et al do not disclose cotton paper.

Howland et al teaches that cotton is the preferred fiber for bank notes (col 5, lines 34-43).

The art of Kaule et al, Gertzmann et al, Leuninger et al, Howland et al and the instant invention is analogous as pertaining to security paper used for bank notes. It would have been obvious to one of ordinary skill in the art to use cotton paper as the substrate of the paper of Kaule et al in view of Gertzmann et al or Leuninger et al and further in view of Howland et al as the preferred paper for bank notes.

6. Claims 12, 19 and 20 are rejected under 35 U.S.C. 103(a) as unpatentable over Kaule et al in view of Gertzmann et al or Leuninger et al and further in view of Gerlier et al (US 6715750).

The disclosures of Kaule et al and Gertzmann et al or Leuninger et al are used as above. Kaule et al and Gertzmann et al or Leuninger et al do not disclose adjusting the upper lacquer layer to obtain predetermined smoothness, sound and/or flexural stiffness.

Gerlier et al teaches that a problem in cut sheet dispensers such as automated teller machines is the accidental dispensing of multiple sheets. One mechanism by which the dispensers operate is by establishing a differential friction between an actuating mechanism and the first and subsequent sheets. A second mechanism involves buckling the top sheet to remove it from the stack (col 1, lines 8-28). Thus, the frictional resistance between bank notes, which is in part due to the smoothness of the sheets, and the flexural stiffness of the bank notes are important features to control.

The art of Kaule et al, Gertzmann et al, Leuninger et al, Gerlier et al and the instant invention is analogous as pertaining to paper used for bank notes. It would have

been obvious to one of ordinary skill in the art to control the composition of the lacquer coatings and their thickness to the claimed range to obtain a predetermined smoothness and flexibility in banknotes made from the paper of Kaule et al in view of Gertzmann et al or Leuninger et al and further in view of Gerlier et al to ensure accurate dispensing in automated machines.

7. Claim 18 is rejected under 35 U.S.C. 103(a) as unpatentable over Kaule et al in view of Gertzmann et al or Leuninger et al and further in view of Tullo et al (US 6905711).

The disclosures of Kaule et al and Gertzmann et al or Leuninger et al are used as above. Kaule et al and Hasegawa et al do not disclose that the upper layer has an antibacterial fungus proofing.

Tullo et al discloses coating antimicrobial solutions on paper, such as mail, financial instruments and currency, that might be used by a terrorist to spread disease (Abs; col 1, lines 10-15; col 7, lines 60-67).

The art of Kaule et al, Gertzmann et al, Leuninger et al, Tullo et al and the instant invention is analogous as pertaining to coatings used to protect paper. It would have been obvious to one of ordinary skill in the art to provide an antibacterial fungus proofing on the upper lacquer layer of the paper of Kaule et al in view of Gertzmann et al or Leuninger et al and further in view of Tullo et al to protect users of the paper from disease.

8. Claim 25 is rejected under 35 U.S.C. 103(a) as unpatentable over Kaule et al in view of Gertzmann et al or Leuninger et al and further in view of Tooth et al (US 4462866).

The disclosures of Kaule et al and Gertzmann et al or Leuninger et al are used as above. Kaule et al and Gertzmann et al or Leuninger et al do not disclose a lacquer layer on both sides of the paper.

Tooth et al discloses a security paper that can be used to make bank notes (Abs; col 3, lines 62-64). The document contains a security element, which may lie in a watermark, thus providing multiple security elements (col 3, lines 6-24). The paper can comprise an overlay in the form of a film that can cover the security element or can extend over the whole of one or more surfaces of the sheet. The overlay can be applied as a liquid which is physically dried and/or cured to form a film (col 3, lines 37-61). The overlay prevents the embedded elongate security element from becoming detached and, when extending over the whole sheet, provides protection for the sheet or, at least, such protection would have been obvious to one of ordinary skill in the art.

The art of Kaule et al, Gertzmann et al, Leuninger et al, Tooth et al and the instant invention is analogous as pertaining to coatings used to protect paper. It would have been obvious to one of ordinary skill in the art to apply a lacquer over both surfaces of the paper of Kaule et al in view of Gertzmann et al or Leuninger et al and further in view of Tooth et al to protect the entire paper.

9. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as unpatentable over Kaule et al in view of Gertzmann et al or Leuninger et al and further in view of Suss (US 6059914) and even further in view of Tooth et al.

The disclosures of Kaule et al and Gertzmann et al or Leuninger et al are used as above. Kaule et al and Gertzmann et al do not disclose a gap in the lacquer layer or an additional security element therein. Kaule et al does disclose applying a hologram by transferring it from a carrier material (col 2, lines 38-41; col 3, lines 19-29).

Suss discloses a method of transferring a hologram to a paper by producing a stamping foil having a decorative layer (i.e.-a hologram) provided on a carrier film only in a region-wise manner corresponding to the desired patterning of the substrate (Abs; col 2, lines 44-63). Multiple discrete hologram elements can be applied to a substrate (col 3, lines 7-11; col 7, lines 49-59, Fig. 3).

Suss does not disclose security elements between the hologram elements forming the pattern.

The disclosure of Tooth et al is used as above.

The art of Kaule et al, Gertzmann et al, Leuninger et al, Suss, Tooth et al and the instant invention is analogous as pertaining to security elements used in paper. It is well known in the art (such as in the paper of Tooth et al) to incorporate multiple security elements in security papers to make forgery difficult. It would have been obvious to one of ordinary skill in the art to apply multiple discrete hologram elements (thus causing gaps between the lacquer layers where the elements are located) to the paper of Kaule et al in view of Gertzmann et al or Leuninger et al and further in view of Suss and even

further in view of Tooth et al to make forgery of the paper more difficult. It would further have been obvious to incorporate the holograms in a watermark, which forms an additional security element in the gaps, to further hinder duplication of the paper.

***Allowable Subject Matter***

10. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The cited prior art fails to disclose silicones or wax as a component of the lacquer coatings and, based on the prior art disclosures, one of ordinary skill in the art would not have found it obvious to include such ingredients into the coatings.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS CORDRAY whose telephone number is (571)272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dennis Cordray/  
Examiner, Art Unit 1791

/Eric Hug/  
Primary Examiner, Art Unit 1791